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(54) Title: NON-HUMAN MAMMAL COMPRISING A MODIFIED SERCA2 GENE AND METHODS, CELLS, GENES, AND  
VECTORS THEREOF

(57) Abstract: The present invention relates to a non-human vertebrate, more particularly a non-human mammal, in which all cells contain genetic modifications in a Ca<sup>2+</sup>-handling Serca ATPase gene, more particularly the Serca2 ATPase. Defective Ca<sup>2+</sup> handling is induced in live animals by introducing genetic elements which direct the timing and specificity of the gene inactivation to the organ or tissue of interest; e.g. cardiac muscle cells. The primary application is to provide a standardized and reproducible animal model for heart failure or other human diseases, in which the defective Ca<sup>2+</sup> handling function by the Serca gene can be manipulated in live animals. This is the only existing animal to date with such genetic modifications for this class of Ca<sup>2+</sup>-handling proteins.



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